STATEMENT OF WORK

TITLE: Support for Task Force on Hemispheric Transport of Air Pollution
CONTRACTOR: SC&A, Inc.
CONTRACT: EP-D-14-033
WA#: 4-
DURATION: August 1, 2019 – September 30, 2019

WORK ASSIGNMENT MANAGER:

Terry Keating
EPA/ORD/NCER/ASED
Mail Code 8725R
1200 Pennsylvania Ave. NW
Washington, DC 20460
(202) 564-1174

Lorraine Reddick (alternate)
EPA/OAR/OAPPS
Mail Code 6103A
1200 Pennsylvania Ave. NW
Washington, DC 20460
(202) 564-1293

SUMMARY:

The purpose of this Work Assignment is to provide logistical support to the U.S. Environmental Protection Agency (EPA) efforts to improve the understanding of the long-range transport of air pollution and its impacts on implementation of the National Ambient Air Quality Standards (NAAQS) and other environmental objectives. In particular, this Work Assignment provides logistical and analytical support for the Task Force on Hemispheric Transport of Air Pollution (TF HTAP) organized under the Convention on Long-Range Transboundary Air Pollution (LRTAP Convention). TF HTAP is co-chaired by EPA staff.

Under this Work Assignment, the contractor will be responsible for

- maintaining a website providing information about the TF HTAP and its activities
- continuing development of a screening model and user interface for exploration of the TF HTAP modeling results
- providing logistical support for meetings of the TF HTAP and identifying appropriate expert participants and arranging their travel to and from the meetings

BACKGROUND:

The EPA is responsible for the review, development, promulgation and implementation of the National Ambient Air Quality Standards (NAAQS). Although domestic sources are the primary contributors to nonattainment of the NAAQS, the United States is both a source and a receptor for the international transport of air pollutants. Pollutants not only flow across our borders with Canada and Mexico, but also travel great distances between North America and Asia, Africa, Europe, and other parts of world. To help States implement and attain the NAAQS, EPA needs to understand these international influences and how they are changing over time. One forum that EPA has used to improve our understanding of these issues is the TF HTAP.

The TF HTAP is charged with organizing international cooperative research and analysis to improve the understanding of the intercontinental transport of air pollutants across the Northern Hemisphere. The TF HTAP is co-chaired by EPA on behalf of the United States, along with a co-chair from Canada and vice-chairs from Germany and Poland. The TF HTAP pursues a multi-year work plan encompassing a range of analytical work addressing emissions inventories and projections; source/receptor and source apportionment analyses; model/observation and process evaluation; impacts on health, ecosystem, and climate; impacts of climate change on pollution; and a distributed data network and analysis tools. Under this Work Assignment, the contractor will provide logistical and analytical support to the U.S. co-chair of TF HTAP as they seek to implement this work plan.

This Work Assignment follows on work completed by the contractor under previous work assignments under this contract (WA 3-03). However, the work described here does not duplicate work conducted under any previous work assignment or contract.

REQUIREMENTS:

Task 1: Work Plan Development and Progress Reports
The contractor shall prepare a Work Plan for completing the requirements of this Work Assignment. The Work Plan will describe the tasks; identify a schedule for completion of sub-tasks and deliverables, staffing, level of effort, and costs; and present conflict of interest certification. The contractor shall submit the Work Plan to the Work Assignment Manager (WAM) within 15 business days of receipt of the Work Assignment.

The contractor shall submit monthly progress reports to the WAM, describing the work that has been accomplished, labor usage and costs incurred to date, and projected labor usage and costs at project completion. The reports shall describe any difficulties encountered in completing the work or adhering to the estimated schedule and identify remedial actions taken during the reporting period. The contractor shall submit the progress report as specified in the contract.

The Contractor shall submit progress reports and work products in electronic format (i.e., PDF).

Task 2: Upgrades and Maintenance of HTAP Website

Under previous work assignments, the contractor established a public website to provide a mechanism for participants to register for TF HTAP meetings and to distribute substantive and logistical information to those participants (http://www.htap.org/). Under this work assignment, the contractor shall:

a) Update the website to comply with current EPA requirements, including for information security
b) Identify long-term hosting arrangements that would enable website management and support from any of the lead parties (United States, Canada, Germany, Poland)
c) Maintain the website to disseminate information about TF HTAP activities to the public and TF HTAP participants based on information provided through the WAM from the TF HTAP leadership team.
d) Facilitate participant registration for meetings or workshops organized by the TF HTAP

during the project period, as needed (See Task 4).

Task 3: Development of the openFASST Screening and Visualization Tool

Under the previous work assignment, the contractor began modification of the Fast Air pollution Scenario Screening Tool (FASST), originally developed by the European Commission Joint Research Center (JRC). The FASST tool consists of a web-based user interface and an underlying model and input database. The tool was originally developed around source-receptor relationships derived with the TM5 atmospheric chemistry model. Under previous work assignments, the contractor was able to demonstrate a version of the user interface operating on a new server with input data from the HTAP2 experiment ensemble. The code for the user interface and calculation tool and the scripts for processing HTAP2 results to provide the data needed by the tool will serve as the starting point for the current task.

The goals of this task will be to:

a) Take stock of other efforts to implement FASST in other programming languages or as components in other models to determine if previous recoding can be leveraged. To this end, the contractor will help organize a web conference with the JRC and other experts who have worked with and modified the FASST code and experts who have developed source-receptor relationships from the HTAP2 ensemble (e.g. Daven Henze, Steven Turnock, Oliver Wild).
b) Identify a sustainable hosting arrangement for the user-interface and tool that will enable collaborative development efforts and public access to the tool.
c) Explore methodological changes that might facilitate the use of source/receptor inputs from new model simulations, enable comparisons of different model estimates with different underlying resolutions, and facilitate the use of new impact response functions and the calculation and use of non-linear source/receptor transfer functions. (I.e., Moving from a rigid FASST to a flexible openFASST with plug-and-play components.)
d) Incorporate the ozone source/receptor relationships developed by Turnock et al. (2018) (https://doi.org/10.5194/acp-18-8953-2018).
e) Recode the user interface and calculation tool from PERL(mostly) to Python, Jupyter Notebook or other language/environment that will facilitate collaborative, open-source development.
f) Calculate source/receptor transfer functions and RERER statistics from the HTAP2 ensemble for policy-relevant ozone metrics, including maximum daily 8 hour average (MDA8).

Task 4: Logistical and Participant Support for TF HTAP Meetings

Typically, the TF HTAP has 1-3 meetings per year. The next meeting of the TF HTAP that is currently being planned is expected to take place in Edinburgh, Scotland, in March 2020. Once a meeting has been scheduled, the contractor, in consultation with the TF HTAP leadership team, shall identify key participants/speakers for the workshop that require travel support. The experts should be drawn from non-profit research institutions in the United States and from research institutions and government agencies in countries identified by the TF HTAP leadership team. These countries may include: Albania, Andorra, Belarus, Cambodia, China, Egypt, India,

Indonesia, Israel, Japan, South Korea, Kazakhstan, Laos, Malaysia, Maldives, Mexico, Mongolia, Myanmar, Nepal, Philippines, Russia, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Ukraine, Uzbekistan, and Vietnam. The contractor shall submit the names of identified experts to the WAM as they are identified. To the extent that funding allows, the contractor shall make the necessary travel and lodging arrangements for the identified experts to enable them to participate in the workshops, leveraging any other available travel funding. The contractor shall provide to the WAM a list of the supported experts and the status of their travel and lodging arrangements at appropriate intervals prior to the meeting. For planning purposes, it is expected that the contractor will be able to fund travel for up to 5 participant-meetings.

SCHEDULE & DELIVERABLES:

The deliverables for each of the tasks are identified in the Requirements section above. The schedule for completion of the sub-tasks and deliverables will be negotiated as part of the contractor's work plan and adjusted as needed through technical direction from the WAM.